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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,357	11/14/2003	Mahendra Pakala	2959P	3326

29141 7590 04/22/2005

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EXAMINER

LE, THAO P

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/714,357	PAKALA ET AL.	
	Examiner	Art Unit	
	Thao P. Le	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 30-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 30-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/14/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Examiner took notice of remarks and amendments made on 04/08/05. The remarks made on the ground that Brady doesn't teach "the magnetic element configured to be written using spin transfer" was found persuasive. Therefore, examiner withdrew the previous rejection.

Claims 15-29 have been withdrawn.

Claims 30-33 have been newly added.

Claims 1-14 and 30-33 are pending in this application.

2. A new rejection based on new prior arts has been made as following.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-14, 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Redon et al., U.S. Patent No. 6532164, in view of Kim et al., "Voltage control of a magnetization easy axis in piezoelectric/ferromagnetic hybrid films" (submitted by applicant as prior art).

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Regarding claims 1, 14, Redon et al. discloses a magnetic memory comprising (See Figs. 1-8 and Cols. 1-12): a plurality of magnetic elements, each of the magnetic elements being configured to be written using spin transfer (lines 5-40, Col. 3)

Redon et al. doesn't mention about having at least one stress-assist layer configured to exert at least one stress on at least one magnetic element during writing.

Kim et al. discloses at least one stress-assist layer to exert at least one stress on magnetic element during writing, the stress-assist layer including at least one of piezoelectric and an electrostrictive material (Abstract and pages 1-2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use stress-assist layer to exert at least one stress on at least one magnetic element during writing as taught in Kim et al. in the structure of Radon et al. because Kim taught that the piezoelectric/ferromagnetic hybrid films is used in magnetic memory device such as Radon et al.'s during writing since a sufficient stress on the magnetic layer can induced by the piezoelectric layer, and a voltage-controlled magnetization switching in ferromagnetic films operated by utilizing both the magnetostrictive and piezoelectric effects in the writing process.

Regarding claims 2-3, Kim et al. discloses wherein the at least one stress induces at least one anisotropy on magnetic element and wherein the stress is in a direction perpendicular to a plane of magnetic layers (Page 2, Fig. 1).

Regarding claims 3-10, 31, 33, Redon et al. discloses the magnetic element includes a free layer, a capping layer, the magnetic element includes spin tunneling junction, one spin valve which includes a first pinned layer having a first ferromagnetic layer closest to the free layer and wherein the at least one spin tunneling junction portion includes a second pinned layer having a second ferromagnetic layer closest to the pinned layer, the first ferromagnetic is in a first direction and the second ferromagnetic is in a second direction opposite to the first direction (Figs. 1-8).

Regarding claims 11-13, Kim et al. discloses the magnetic memory includes stress-assist layer surrounds the sides of magnetic element and resides between the plurality of word lines and magnetic element and the stress assist layer includes bi layer of at least one of PbZrTiO_3 (experiments, page 2).

Regarding claims 30, 32, Redon et al. discloses the magnetic elements includes a first lead and a second lead for driving current through the magnetic element in a perpendicular to a plane direction to allow the magnetic element to be written using spin transfer (abstract, Cols. 3-6).

5. When responding to the office action, Applicants' are advice to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao P. Le whose telephone number is 571-272-1785. The examiner can normally be reached on M-T (7-6).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thao P. Le
Examiner
Art Unit 2818